1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

thought to be related to the race of mankind. On the other hand, the manatee is hunted occasionally. Birds are hunted but seldom, but the meat of the iguana is prized. This animal is not found in great quantities, however, in the open plains.

The vegetable diet is somewhat more plentiful and varied. There are no restrictions or taboos on what can be eaten. In the dry season it is the potato-like changuango, which is gathered by the women and which is to be seen broiling over the fires at all times, and which is the only food which the Yaruros are able to keep for a few days by burying it in the sand. In the rainy season it is the chigua seed and the barbaco which form the basic foods. The following list includes most of the foods eaten by the Yaruros:

DRY SEASON

Eggs.—Terracai (small water turtle) (mostly in February), turtle (March, April), galapago (tortoise—December), crocodile (cayman—February), babu (December).

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire (capibara), birds, iguana.

Vegetables.—Changuango (root found in the savanna), barbaco (root found in the forest, mostly in May), guapo (a root found in the forest), wild yam (found in the savanna and the forests), fruit of the macanilla palm, honey, hearts of palm (in April).

DRY AND RAINY SEASON

Fish.—(Local Spanish names) tapuara, caribe, toporo, tachiama, palumeta, pavon, cajani, temblador (electric eel).

RAINY SEASON

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire, birds, iguana.

Vegetables.—Fruit of the moriche, chigua, barbaco.

PROPERTY

The Yaruros do not have much personal property. Nevertheless, what each person possesses is respected scrupulously. This attitude is especially in evidence when, for instance, a visitor attempts to purchase such a thing as a pot. In my case I was forced to ask the men. In spite of any price that I might offer they never allowed themselves to give any kind of an answer to my offer. Instead they offered the explanation that the pots were the property of the women and, therefore, they had to be asked if they wished to sell them. My own property I left in camp often without anyone to watch over it, but never did I miss even a sheet of paper.

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252 462 successful if the men do not come back with a number of crocodiles, the men build larger fires, upon which the crocodiles are laid. As the hide cracks the animals are split open, the meat is stuck on spits and upon reaching a stage of being warm it is eaten. Contrary to popular [261] ideas that crocodile eaters only consume the tail, the Yaruro eat the entire animal but stop short at the entrails, which are thrown to the dogs. However, they accuse the neighboring Guahibos of eating the entrails as a special delicacy. Turtle meat and eggs are often boiled.

263 261 Salt is known to these people but it is by no means considered an indispensable condiment in their food. In the only historical reference we have to the Yaruros they are referred to as clay eaters. Today, even though they are in occasional touch with civilized com- [317] munities, the salty clay banks are still their only source of supply for salt. The food is generally eaten saltless, since they have no means of purchasing salt from the Racionales and they do not know how to make salt from the clay. As a result, they obtain the amount of salt necessary to life by chewing clay which they pick up in their wanderings over the plains. Food which I prepared with salt was always left untouched by them as being unsavory. In this respect, therefore, they act like the cattle and the deer which can be seen over the plains licking salt clay banks.

STORING OF FOOD

251 The only foods that can be kept for any length of time in the lowland tropics are the roots and seeds. In the rainy season even this is impossible. The Yaruros during the dry season leave caches of changuango on various sandbars. They dig pits into which they place the roots. The hole then is filled and soon the wind will leave no mark indicating that the sand has been disturbed. In some cases where the landmarks are plain, and the Yaruros expect to return in a day or two, no markers are placed anywhere. But if they expect to be delayed, or the sandbar is so large that they might forget the exact spot of the cache, they will thrust a stick into the ground [151] at some distance away. Apparently by sighting with this stick and some other chosen point, they are able to locate the food store. However, on a number of occasions I saw the Yaruros march to a place on the sands with certitude and excavate changuango. In such cases I saw no markers.

In similar fashion they may store turtle eggs, provided they expect to return within a few hours. Baskets and other objects may also be left in the sand, to be retrieved when they are needed. Asabache, which is found in certain localities, may be gathered in quantities and stored until it is to be used.

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251 During the rainy season the seed of the chigua is gathered. It is crushed, toasted, and stored in small quantities in the same way as the changuango, provided, of course, that a spot is found high enough to keep it dry.

Social Organization and Social Customs

596 616 622 791 554 Economically the family hunting group is the basic unit, as has been shown in the previous chapter. In social matters, however, it is the moiety. Each family hunting group recognizes a headman and each moiety recognizes a chief who in all cases is the shaman. Both of these positions of authority are acquired only through personal merit. There is no inheritance of chieftainship or shamanism. If the nephew of a headman shows ability he may inherit his uncle's position, and theoretically this is the scheme. In natural practices we find that not only the Yaruros but perhaps a great many other primitive peoples are very realistic and are loath to give authority to an individual whose personality does not stand for leadership.

616 428 Every Yaruro is born in either the "Itciai" or "Puaná" moiety. Descent, with its social affinities, prerogatives, and obligations, being traced through the female line, the child belongs to its mother's moiety. Nothing is inherited from the father, who belongs to the other moiety, except obligations.

616 773 There is a legend among the Yaruros that two young men not finding any marriageable girls among their own people mated with the Jaguar and with the Snake. From these two unions are descended the two moieties. Since only among animals do brothers and sisters mate it has become a rule that two descendants of the Jaguar, "Itciai", cannot marry with each other; nor can two descendants of the Snake, "Puaná", marry with each other. They must seek a mate from the other group. Thus an "Itciai" must always marry a "Puaná", and vice versa. Cross-cousin marriage solves this problem.

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In this system, therefore, a man's children belong to his wife's moiety, from which he is socially excluded. His sister's children, on the other hand, are socially close to him since they too inherit moiety membership from their mother which is the same as his own. Deprived of his own children to carry on his traditions, a man looks to his sister's children to take their place. It is his nephews who will help him in hunting, who will come to his defence, who will take care of him in old age. As if in payment of such attention he gives them his daughters in marriage. Thus his sisters' sons become his sons-in-law.

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121 596 Yaruro society is built around the hunting group, which in numbers is never stable. The hunt and the gathering of food such as roots and fruits calls for a certain amount of cooperative effort, but

mother's and sister's households, nevertheless hunted and harvested for himself, and often cooked for himself meals of the type ordinarily cooked only by women. 462 463

The forms and characteristics of surpluses, as defined by Harris, [16] shed further light on the structure of the ecology. The technological surplus, defined as the difference between total calories annually produced by any definable group and the calories used to produce them, or as the ratio between these two figures, may be estimated at about 8 or 9 to 1 as compared with Harris's estimated figures of 2:1 for the Sirionó or 33:1 for the Pencuyut Maya. [17] Since as Harris remarks, the degree of social stratification in a large number of cases correlates with the size of the technological surplus, we would scarcely expect to find social stratification among the Yaruro, nor even any significant ranking. Where the technological surplus is low, the producer's surplus, defined as the difference between total calories produced by any given group and the total calories used by the producers for all purposes must also be low. Therefore the number of persons other than producers who can be supported by the producers is also limited. The producers' surplus may provide an index of the degrees of specialization which might be expected. In the case of the Yaruro one would expect no, or very low, specialization. Again, with a low producers' surplus, one would expect to find a greater proportion of the group involved in production than where such surpluses are high, for otherwise there would be insufficient calories to support more than a few people other than the producers. With a low producers' surplus, one would expect, in general, to find a greater proportion of both sexes engaged in the food quest. This is, of course, born out in the case of the Yaruro. Finally, Harris's harvest surplus is defined as the difference between the amount produced at any given moment, especially at seasonal maxima, and the amount consumed at that time. The actual amount consumable is governed by the seasonal *minima*, since the population cannot rise higher than the food supply at minimum periods permits unless special technological features such as storage, are present. Where the harvest surpluses are of non-storable goods, the population level is in equilibrium with the absolute minima of the harvests. The greater the degree of storability through a nonproductive season, or the less marked a crop is by seasonality, the higher the level to which the minimum population can be raised as compared with the number of people supportable at levels of production comparable to those at the time of harvest. Storability, however, is only one dimension of the harvest surplus. Absolute size of the peak surpluses, their regularity over the years, their distribution in space and time in the annual cycle, their utility in raw form, and the proportion of labor needed to harvest them relative to the time allotted for the harvest are all important dimensions of the harvest surplus. Thus, manioc, the Yauro's chief food resource has no clear peak, is regular over the years (the Yaruro disclaim any famines), is storable both in raw form and in prepared forms, is, in the case of the Yaruro, so located as not to permit of a concentration of labor at any one time and needs no massive labor for harvesting because of short harvest periods. Thus, in general, the very nature of manioc as a crop, and the labor requisites for

121 433 182 [56] [463] [462] [262] [251] [241]

16, 17 [For footnotes see p. 43, category 116--Analyst]

46 433 sacre, the labor force actually observed in "my" group was a little more than 25% of that number, or 18, and neighboring groups were generally still smaller. These 154, 67, and especially the actual 18 workers, even if, at any given moment, *all* were working at subsistence activities, would be distributed over various parts of the 110 square miles of territory under the kind of dispersive habitat and technological conditions described. They are in fact so thinly scattered as to preclude any sort of continuing managerial functions.

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241 433 A consideration of the forms of the harvest surplus[39] is relevant to our discussion. Harvest surpluses must be considered with respect both to individual subsistence resources and to all subsistence resources taken together. In the annual cycle, there is considerable variation in the amount produced of any given crop, except for sweet and bitter manioc which together constitute perhaps 40% of the annual food supply of the Yaruro. Manioc produces throughout the year. Given that the manioc-growing areas are widely dispersed and that considerable labor is drawn from manioc areas by still more dispersed resources, it follows that most work units for manioc gardens will consist of only one or two men, each having their own swidden or sharing it with one or two others to supply themselves and their immediate families throughout the year. As might be expected, land tenure and land usage patterns are in accord with this inference. Occasionally small oscillations in the manioc crops may produce small harvest surpluses. These, at least nominally, belong to the man in whose swidden they grow and are his for disposal. The quantities, however, are exceedingly small, and present no problems of storage or disposal necessitating more centralized supervision and allocation. Most other resources display a similar pattern though to an even smaller degree. 262 Fish are obtainable, for the Cinaruco Yaruro, all year round with almost equal ease, though the Palmariteños have a more difficult time because of the grassy and muddy waters in the rainy season. Hunting windfalls and large pigs are the only animal sources which present harvest surpluses of any size. However, these are small enough so that they last at most two or three days, and they are so irregular both as to occurrence and as to personnel involved that no regular centralized [251] institutional mode of handling them is entailed. The virtual absence of meat storage

[171] For example, in the Trobriand Islands, in a good year, all the yams harvested cannot be eaten at once, nor can they be stored. Some portion of the crop is then lost by spoilage. We may construct, in terms of calories or other significant food values, two ratios:

[146 464] $\frac{C_h}{C_p}$ $\frac{C_c}{C_h}$

C — Calories
c — consumed
p — potential
h — harvested (= available for use)

The first may be used as a measure of the efficiency of the productive capacity of the technology; the second as a measure of the efficiency of the distributive capacity of the technology.

[39] The technological, producers, and harvest surpluses are defined in Harris, 1958, [114] and implied in Harris, 1959. They are dealt with in detail with respect to the Yaruro in Leeds, 1961. Other relevant discussions of surplus are found Sahlins, 1958; Jacobs and Stern, 1952, Ch VI.

also inhibits any such development because it forces the immediate distribution of most of the meat of the slaughtered pig or captured game. There is no constantly or repeatedly stored supply to be supervised or allocated. In fact swine and windfall game, properly considered, correspond to the small oscillations of the manioc supply and are totally different from the regularly occurring massive incidence of food sources like buffalo herds, salmon runs, and wheat harvests of temperate climates or crab runs in the tropical Orinoco delta of Venezuela.[21]. Of all the food resources, the only one with a marked harvest surplus is corn. The significance of even this harvest surplus is reduced by a) the smallness of the quanta involved relative to the total food supply, and b) the fact that there are two corn seasons, one beginning in June, one about the beginning of February. Temporary harvest surpluses of corn may, however, contribute slightly to the enhanced prestige of those individuals who by their own will and work have been most productive.[22] They say with appreciation, "He is a hard worker", but the prestige is relevant only to the sphere in which it is gained. It does not necessarily give him prestige in some other spheres of cultural life, such as, for example, the ceremonial or decision-making activities.

In taking an overall view of the food resources, it will be noted that there are no clear harvest surpluses, and that the oscillations in supply, which are in truth minute and momentary harvest surpluses, are so small and irregular and varied in location as to be insignificant determiners of managerial functions. At most one might expect the harvest surplus of corn to elicit some small allocative function, generally none. Storage, too, in this case, is not a technique requiring administration as with wheat in grain elevators. It would in fact be better to consider this kind of storage as a steady presence of food rather than as storage at all, even though it functions as such.

The extra labor requirements of these small upward oscillations of the harvest surplus are likewise, in general, indistinguishable from regular labor requirements and are easily absorbed by individual workers. Or a worker may take along a child, who goes as much for the fun of being with his father or grandfather, but nevertheless carries back some produce. This type of situation is in sharp contrast with, say, the labor requirements of a large harvest surplus like the wheat crop in the United States which demands a large amount of labor quickly and temporarily. Such a harvest surplus entails a number of organizational problems foreign to the harvest oscillations.

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[21] Personal communication from Johannes Wilbert who has done extensive fieldwork with the Warrau in the Amacuro Delta of the Orinoco River.

[22] Yaruro individuals differ in productivity not only because of inborn qualities such as strength and native abilities, but also by choice based on tastes. Some do not like to grow corn, others do not like to grow pigs, others still prefer to hunt or trade. The food quanta produced by these several activities vary greatly. The individual may exercise these choices in a cultural setting where any such choice benefits the community. All produce eventually finds its way into the community at large through the distribution mechanism. The person is not acting as an individualist regardless of the interest of others, but at his own optimum, given his unique person, in the community as a whole. Cf Fn 3 *supra*.